CLAIMS

1. A method of authentication and authorization support for Mobile IP version 6 (MIPv6) in a CDMA system, characterized by transferring MIPv6-related information in an authentication protocol in an end-to-end procedure between a mobile node (10) in a visited network and a home network of the mobile node over an AAA infrastructure.

2. The method of claim 1, wherein the authentication protocol is an extended authentication protocol.

3. The method of claim 1, wherein the end-to-end procedure is executed between the mobile node (10) and an AAA server (34) in the home network.

4. The method of claim 3, wherein the MIPv6-related information is transferred in the authentication protocol between the mobile node (10) and the AAA home network server (34) via an internetworking access server (22) located in the visited network.

5. The method of claim 4, wherein the internetworking access server (22) is a PDSN node

6. The method of claim 4, wherein point-to-point communication between the mobile node (10) and the internetworking access server (22) is configured based on the CSD-PPP protocol.

7. The method of claim 1, wherein the MIPv6-related information comprises information selected from the group of MIPv6 authentication, authorization and configuration information.

8. The method of claim 2, wherein the extended authentication protocol is an extended Extensible Authentication Protocol (EAP) and the MIPv6-related information is incorporated as additional data in the EAP protocol stack.

9. The method of claim 8, wherein the MIPv6-related information is transferred as EAP attributes of the method layer in the EAP protocol stack.

10. The method of claim 8, wherein the MIPv6-related information is transferred in a generic container attribute available for any EAP method.

11. The method of claim 8, wherein the MIPv6-related information is transferred in a method-specific generic container attribute of the method layer in the EAP protocol stack.

12. The method of claim 1, wherein the authentication protocol is carried by a protocol selected from the group of PANA, PPP, and CSD-PPP between the mobile node (10) and an internetworking access server of the visited network.

13. The method of claim 4, wherein the authentication protocol is carried by an AAA framework protocol application between the internetworking access server (22) of the visited network and the AAA server (34) in the home network.

14. The method of claim 13, wherein the AAA framework protocol application is selected from the group of Diameter, and RADIUS.

15. The method of claim 1, wherein said method further comprises the step of performing, for the purpose of MIPv6 hand-in, CHAP authentication between the mobile node and the home network.

16. The method of claim 15, wherein said step of performing CHAP authentication comprises the step of using an authentication phase of PPP.

17. The method of claim 1, wherein the MIPv6-related information is transferred over the AAA infrastructure for allocation of a home agent (36).

18. The method of claim 1, wherein the MIPv6-related information is transferred over the AAA infrastructure for establishing a MIPv6 security association between the mobile node (10) and a home agent (36).

19. The method of claim 1, wherein the MIPv6-related information is transferred over the AAA infrastructure for establishing a binding for the mobile node (10) in a home agent (36).

20. The method of claim 4, wherein the internetworking access server (22) offers the mobile node the possibility to use PPP or CSD-PPP by sending out a standard PPP/LCP packet and at least a PPP/EAP packet.

21. The method of claim 20, wherein the mobile node opts for CSD-PPP using PPP/EAP, concurrently processing PPP/LCP.

22. The method of claim 20, wherein the mobile node opts for PPP and processes PPP/LCP.

23. The method of claim 20, wherein the internetworking access server also sends out a PPP/CHAP packet together with the PPP/LCP and PPP/EAP packets.

24. The method of claim 23, wherein the mobile node wants MIPv6 hand-in and opts for CSD-PPP using PPP/CHAP, concurrently processing PPP/LCP.

25. The method of claim 1, wherein assignment of a global IPv6 address is performed based on DHCP exchanges between the mobile node and the home network over the AAA infrastructure.

26. The method of claim 1, wherein IPv6 address configuration is performed based on the NCP (IPv6CP) phase of PPP for Interface-ID assignment, and IPv6 router solicitation/advertisement for obtaining the global prefix of the IPv6 address.

27. A system for authentication and authorization support for Mobile IP version 6 (MIPv6) in a CDMA system, characterized by means for transferring MIPv6-related information in an authentication protocol in an end-to-end procedure between a mobile node (10) in a visited network and a home network of the mobile node over an AAA infrastructure.

28. The system of claim 27, wherein the authentication protocol is an extended authentication protocol.

29. The system of claim 27, wherein the end-to-end procedure is between the mobile node (10) and an AAA server (34) in the home network.

30. The system of claim 29, wherein the MIPv6-related information is transferred in the authentication protocol between the mobile node (10) and the AAA home network server (34) via an internetworking access server (22) located in the visited network.

31. The method of claim 30, wherein the internetworking access server (22) is a PDSN node

32. The system of claim 30, further comprising means for configuring point-to-point communication between the mobile node (10) and the internetworking access server (22) based on the CSD-PPP protocol.

33. The system of claim 27, wherein the MIPv6-related information comprises information selected from the group of MIPv6 authentication, authorization and configuration information.

34. The system of claim 28, wherein the extended authentication protocol is an extended Extensible Authentication Protocol (EAP) and the MIPv6-related information is incorporated as additional data in the EAP protocol stack.

5   35. The system of claim 34, wherein said means for transferring MIPv6-related information comprises means for transferring the MIPv6-related information as EAP attributes of the method layer in the EAP protocol stack.

36. The system of claim 34, wherein said means for transferring MIPv6-related
10   information comprises means for transferring the MIPv6-related information in a generic container attribute available for any EAP method.

37. The system of claim 34, wherein said means for transferring MIPv6-related information comprises means for transferring the MIPv6-related information in a
15   method-specific generic container attribute of the method layer in the EAP protocol stack.

38. The system of claim 27, wherein the authentication protocol is carried by a protocol selected from the group of PANA, PPP, and CSD-PPP between the mobile
20   node (10) and an internetworking access server of the visited network.

39. The system of claim 30, wherein the authentication protocol is carried by an AAA framework protocol application between the internetworking access server of the visited network and the AAA server (34) in the home network.

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40. The system of claim 39, wherein the AAA framework protocol application is selected from the group of Diameter, and RADIUS.

41. The system of claim 27, wherein said system further comprises means for
30   performing, for the purpose of MIPv6 hand-in, CHAP authentication between the mobile node and the home network.

42. The system of claim 41, wherein said means for performing CHAP authentication is operable for using an authentication phase of PPP.

43. The system of claim 27, wherein said means for transferring MIPv6-related information is operable for transferring the MIPv6-related information over the AAA infrastructure for allocation of a home agent (36).

44. The system of claim 27, wherein said means for transferring MIPv6-related information is operable for transferring the MIPv6-related information over the AAA infrastructure for establishing a MIPv6 security association between the mobile node (10) and a home agent (36).

45. The system of claim 27, wherein said means for transferring MIPv6-related information is operable for transferring the MIPv6-related information over the AAA infrastructure for establishing a binding for the mobile node (10) in a home agent (36).

46. The system of claim 30, wherein the internetworking access server (22) is operable for offering the mobile node the possibility to use PPP or CSD-PPP by sending out a standard PPP/LCP packet and at least a PPP/EAP packet.

47. The system of claim 46, wherein the mobile node is operable for selecting CSD-PPP using PPP/EAP, concurrently processing PPP/LCP.

48. The system of claim 46, wherein the mobile node is operable for selecting PPP and processing PPP/LCP.

49. The system of claim 46, wherein the internetworking access server is operable for sending out a PPP/CHAP packet together with the PPP/LCP and PPP/EAP packets.

50. The system of claim 49, wherein the mobile node, wanting MIPv6 hand-in, is operable for selecting CSD-PPP using PPP/CHAP, concurrently processing PPP/LCP.

51. The system of claim 27, further comprising means for assignment of a global IPv6 address based on DHCP exchanges between the mobile node and the home network over the AAA infrastructure.

52. The system of claim 27, further comprising means for IP address configuration based on the NCP (IPv6CP) phase of PPP for Interface-ID assignment, and IPv6 router solicitation/advertisement for obtaining the global prefix of the IPv6 address.

53. A system for Mobile IP version 6 (MIPv6) hand-in within a CDMA framework, characterized by means for performing CHAP authentication between a mobile node (10) in a visited network and an AAA server in a home network of the mobile node over an AAA infrastructure.

54. An AAA home network server (34) for authentication and authorization support for Mobile IP version 6 (MIPv6) in a CDMA system, characterized by
        means for assigning a home agent (36) to a mobile node (10); and
        means for distributing credential-related data for security association establishment between the mobile node and the home agent to the mobile node and the home agent, respectively.

55. The server of claim 54, characterized by means for assigning a home address to the mobile node (10).

56. The server of claim 55, characterized by means for configuring the home address of the mobile node (10) using the roundtrips of a selected EAP procedure.

57. The server of claim 55, characterized by means for transferring the home address of the mobile node (10) to the home agent (36) using an AAA framework protocol application.

AMENDED CLAIMS
[Received by the International Bureau on 23 Nov 2004 (23.11.04);
original claims 1-57 has been replaced by amended claims 1,3,7,827,39,33
the remaining claims is unchanged..]

1.   A method of authentication and authorization support for Mobile IP version 6
(MIPv6) in a CDMA system, characterized by transferring, between a mobile node
(10) in a visited network and a home network of the mobile node, MIPv6-related
authentication and authorization information in an authentication protocol in an end-to-
end procedure transparent to the visited network over an AAA infrastructure.

2.   The method of claim 1, wherein the authentication protocol is an extended
authentication protocol.

3.   The method of claim 1, wherein the end-to-end procedure is executed between the
mobile node (10) and an AAA server (34) in the home network, and nodes in the
visited network act as mere pass-through agents in the end-to-end procedure.

4.   The method of claim 3, wherein the MIPv6-related information is transferred in
the authentication protocol between the mobile node (10) and the AAA home network
server (34) via an internetworking access server (22) located in the visited network.

5.   The method of claim 4, wherein the internetworking access server (22) is a PDSN
node

6.   The method of claim 4, wherein point-to-point communication between the mobile
node (10) and the internetworking access server (22) is configured based on the CSD-
PPP protocol.

7.   The method of claim 1, wherein the MIPv6-related information also comprises
MIPv6 configuration information.

8.   The method of claim 2, wherein the extended authentication protocol is an
extended Extensible Authentication Protocol (EAP) and the MIPv6-related

authentication and authorization information is incorporated as additional data in the EAP protocol stack.

9. The method of claim 8, wherein the MIPv6-related information is transferred as EAP attributes of the method layer in the EAP protocol stack.

10. The method of claim 8, wherein the MIPv6-related information is transferred in a generic container attribute available for any EAP method.

11. The method of claim 8, wherein the MIPv6-related information is transferred in a method-specific generic container attribute of the method layer in the EAP protocol stack.

12. The method of claim 1, wherein the authentication protocol is carried by a protocol selected from the group of PANA, PPP, and CSD-PPP between the mobile node (10) and an internetworking access server of the visited network.

13. The method of claim 4, wherein the authentication protocol is carried by an AAA framework protocol application between the internetworking access server (22) of the visited network and the AAA server (34) in the home network.

14. The method of claim 13, wherein the AAA framework protocol application is selected from the group of Diameter, and RADIUS.

15. The method of claim 1, wherein said method further comprises the step of performing, for the purpose of MIPv6 hand-in, CHAP authentication between the mobile node and the home network.

16. The method of claim 15, wherein said step of performing CHAP authentication comprises the step of using an authentication phase of PPP.

17. The method of claim 1, wherein the MIPv6-related information is transferred over the AAA infrastructure for allocation of a home agent (36).

18. The method of claim 1, wherein the MIPv6-related information is transferred over the AAA infrastructure for establishing a MIPv6 security association between the mobile node (10) and a home agent (36).

19. The method of claim 1, wherein the MIPv6-related information is transferred over the AAA infrastructure for establishing a binding for the mobile node (10) in a home agent (36).

20. The method of claim 4, wherein the internetworking access server (22) offers the mobile node the possibility to use PPP or CSD-PPP by sending out a standard PPP/LCP packet and at least a PPP/EAP packet.

21. The method of claim 20, wherein the mobile node opts for CSD-PPP using PPP/EAP, concurrently processing PPP/LCP.

22. The method of claim 20, wherein the mobile node opts for PPP and processes PPP/LCP.

23. The method of claim 20, wherein the internetworking access server also sends out a PPP/CHAP packet together with the PPP/LCP and PPP/EAP packets.

24. The method of claim 23, wherein the mobile node wants MIPv6 hand-in and opts for CSD-PPP using PPP/CHAP, concurrently processing PPP/LCP.

25. The method of claim 1, wherein assignment of a global IPv6 address is performed based on DHCP exchanges between the mobile node and the home network over the AAA infrastructure.

26. The method of claim 1, wherein IPv6 address configuration is performed based on the NCP (IPv6CP) phase of PPP for Interface-ID assignment, and IPv6 router solicitation/advertisement for obtaining the global prefix of the IPv6 address.

5   27. A system for authentication and authorization support for Mobile IP version 6 (MIPv6) in a CDMA system, characterized by means for transferring, between a mobile node (10) in a visited network and a home network of the mobile node, MIPv6-related authentication and authorization information in an authentication protocol in an end-to-end procedure transparent to the visited network over an AAA infrastructure.

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28. The system of claim 27, wherein the authentication protocol is an extended authentication protocol.

29. The system of claim 27, wherein the end-to-end procedure is between the mobile
15   node (10) and an AAA server (34) in the home network, and nodes in the visited network act as mere pass-through agents in the end-to-end procedure.   .

30. The system of claim 29, wherein the MIPv6-related information is transferred in the authentication protocol between the mobile node (10) and the AAA home network
20   server (34) via an internetworking access server (22) located in the visited network.

31. The method of claim 30, wherein the internetworking access server (22) is a PDSN node

25   32. The system of claim 30, further comprising means for configuring point-to-point communication between the mobile node (10) and the internetworking access server (22) based on the CSD-PPP protocol.

33. The system of claim 27, wherein the MIPv6-related information also comprises
30   MIPv6 configuration information.

34. The system of claim 28, wherein the extended authentication protocol is an extended Extensible Authentication Protocol (EAP) and the MIPv6-related authentication and authorization information is incorporated as additional data in the EAP protocol stack.

35. The system of claim 34, wherein said means for transferring MIPv6-related information comprises means for transferring the MIPv6-related information as EAP attributes of the method layer in the EAP protocol stack.

36. The system of claim 34, wherein said means for transferring MIPv6-related information comprises means for transferring the MIPv6-related information in a generic container attribute available for any EAP method.

37. The system of claim 34, wherein said means for transferring MIPv6-related information comprises means for transferring the MIPv6-related information in a method-specific generic container attribute of the method layer in the EAP protocol stack.

38. The system of claim 27, wherein the authentication protocol is carried by a protocol selected from the group of PANA, PPP, and CSD-PPP between the mobile node (10) and an internetworking access server of the visited network.

39. The system of claim 30, wherein the authentication protocol is carried by an AAA framework protocol application between the internetworking access server of the visited network and the AAA server (34) in the home network.

40. The system of claim 39, wherein the AAA framework protocol application is selected from the group of Diameter, and RADIUS.

41. The system of claim 27, wherein said system further comprises means for performing, for the purpose of MIPv6 hand-in, CHAP authentication between the mobile node and the home network.

5   42. The system of claim 41, wherein said means for performing CHAP authentication is operable for using an authentication phase of PPP.

43. The system of claim 27, wherein said means for transferring MIPv6-related information is operable for transferring the MIPv6-related information over the AAA
10   infrastructure for allocation of a home agent (36).

44. The system of claim 27, wherein said means for transferring MIPv6-related information is operable for transferring the MIPv6-related information over the AAA infrastructure for establishing a MIPv6 security association between the mobile node
15   (10) and a home agent (36).

45. The system of claim 27, wherein said means for transferring MIPv6-related information is operable for transferring the MIPv6-related information over the AAA infrastructure for establishing a binding for the mobile node (10) in a home agent (36).
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46. The system of claim 30, wherein the internetworking access server (22) is operable for offering the mobile node the possibility to use PPP or CSD-PPP by sending out a standard PPP/LCP packet and at least a PPP/EAP packet.

25   47. The system of claim 46, wherein the mobile node is operable for selecting CSD-PPP using PPP/EAP, concurrently processing PPP/LCP.

48. The system of claim 46, wherein the mobile node is operable for selecting PPP and processing PPP/LCP.

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49. The system of claim 46, wherein the internetworking access server is operable for sending out a PPP/CHAP packet together with the PPP/LCP and PPP/EAP packets.

50. The system of claim 49, wherein the mobile node, wanting MIPv6 hand-in, is operable for selecting CSD-PPP using PPP/CHAP, concurrently processing PPP/LCP.

51. The system of claim 27, further comprising means for assignment of a global IPv6 address based on DHCP exchanges between the mobile node and the home network over the AAA infrastructure.

52. The system of claim 27, further comprising means for IP address configuration based on the NCP (IPv6CP) phase of PPP for Interface-ID assignment, and IPv6 router solicitation/advertisement for obtaining the global prefix of the IPv6 address.

53. A system for Mobile IP version 6 (MIPv6) hand-in within a CDMA framework, characterized by means for performing CHAP authentication between a mobile node (10) in a visited network and an AAA server in a home network of the mobile node over an AAA infrastructure.

54. An AAA home network server (34) for authentication and authorization support for Mobile IP version 6 (MIPv6) in a CDMA system, characterized by
      means for assigning a home agent (36) to a mobile node (10); and
      means for distributing credential-related data for security association establishment between the mobile node and the home agent to the mobile node and the home agent, respectively.

55. The server of claim 54, characterized by means for assigning a home address to the mobile node (10).

56. The server of claim 55, characterized by means for configuring the home address of the mobile node (10) using the roundtrips of a selected EAP procedure.

57. The server of claim 55, characterized by means for transferring the home address of the mobile node (10) to the home agent (36) using an AAA framework protocol application.

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